

**REMARKS**

Claims 49-54, 56-62 and 64-67 are presently pending and under examination. Claims 49-52, 56-60 and 64 have been amended. Claims 53, 54, 61, 62 and 65-67 have been canceled. Following entry of the amendments claims 49-52, 56-60 and 64 will be pending and under examination. Support for the amendments can be found throughout the application as filed. Support for the amendments to claims 49 and 57, directed to producing an *in silico* representation and performing flux balance analysis on an *in silico* strain, can be found, for example, in canceled claims 53 and 54, and in canceled claims 61 and 65, respectively. Support for the amendment to claims 49 and 57, directed to providing an output, can be found, for example, in claims 49 and 57 as pending and at, for example, as page 3, last paragraph, line 3 through page 4, line 2; page 6, first through fourth paragraphs. Support for the amendment to claims 49 and 57, directed to most of the metabolic genes in a genome, can be found at, for example, page 6, lines 1-3, and page 7, last paragraph, lines 3-4. Claims 56 and 64 have been amended to change dependency to current base claims 49 and 57, respectively. Claims 50-52 and 58-60 have been amended to correct obvious typographical errors. Accordingly, the amendments do not raise an issue of new matter and entry thereof is respectfully requested. Applicants have reviewed the Office Action mailed September 11, 2007, and respectfully traverse all grounds of rejection for the reasons that follow.

**Rejections Under 35 U.S.C. § 101**

Claims 49-54, 56-62 and 64-65 stand rejected under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. With respect to claims 49 and 57, the Examiner alleges that the claimed stoichiometric matrix is a list of numbers and names which require further interpretation to be useful. With respect to claims 53 and 61, the Examiner asserts that there is no transformation of matter or output of a concrete, tangible and useful result allegedly because the *in silico* representation remains in a computer. With respect to claims 54 and 65, the Examiner alleges that the claim lacks a concrete, tangible and useful result if the final step of corresponds to the flux balance analysis. If the output corresponds to the output of claim 49 the Examiner alleges that the rejection of claim 49 above applies.

Applicant respectfully maintains that the claims as written are directed to statutory patentable subject matter. Nevertheless, claims 49 and 57 have been amended to recite all the elements of claims 54 and 65, respectfully. Therefore, claims 49 and 57 are directed to a method of simulating a metabolic capability of an *in silico* strain. Following performing a flux balance analysis model on the *in silico* strain a visual output is provided to a user of the strain's simulated metabolic capability. Applicant submits that such an output is concrete, tangible and useful because it is not merely data or something that resides in a computer. Rather, the output provides a visual representation of the simulated metabolic fluxes of the strain. In light of this amendment, Applicant respectfully submits that this ground of rejection is moot and its withdrawal is respectfully requested.

#### **Rejections Under 35 U.S.C. § 112**

Claims 49-54, 56-62 and 64-65 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly lacking written description. The Examiner alleges that application lacks supports for a plurality of DNA sequences as claimed, but concedes that most or all of the genes involved in metabolic reactions are adequately supported in the application as filed.

Applicant respectfully maintains that the application satisfies the written description requirements of § 112, first paragraph. Nevertheless, the claims have been amended to recite that a plurality of sequences comprising most of the metabolic genes in a genome are obtained. Applicant respectfully submits that in light of this amendment this ground of rejection is now moot. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Claims 49-54, 56-62, 64 and 65 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly lacking enablement. The Examiner alleges the specification fails to provide guidance for producing a stoichiometric matrix or an *in silico* representation or strain containing genes other than from most or all of the genes involved in metabolic reactions.

Applicant respectfully maintains that the application provides sufficient teachings and guidance to satisfy the enablement requirement of § 112, first paragraph. Nevertheless, the claims have been amended to recite that a plurality of sequences comprising most of the

metabolic genes in a genome are obtained. Applicant respectfully submits that in light of this amendment this ground of rejection is now moot and respectfully request its withdrawal.

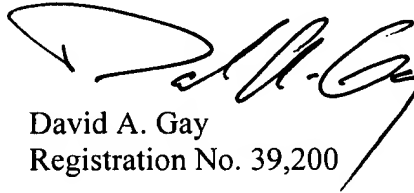
**CONCLUSION**

In light of the Remarks herein, Applicant submits that the claims are in condition for allowance and respectfully requests a notice to this effect. Should the Examiner have any questions, she is invited to call the undersigned attorney.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 502624 and please credit any excess fees to such deposit account.

Respectfully submitted,

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